



# Survey123 and Field Tools

Presented by Linda Davis

January, 2018



# Field tools

- Benefits of mobile collection applications
- The tools used
- Applications
- Requirements
- Challenges and lessons learned





# Benefits



- Processes that were done with paper and pencil can be assisted or streamlined with field tools carried on phones or tablets.
- Easy access to data
- Stored in the cloud
- Allows people to use 'phone or device tools'
- Increases accuracy / completeness of data gathered

# Collecting Data in the Field

- **Survey 123**
  - Form centric
  - Quick to deploy surveys that allow point data collection
- **Collector**
  - GIS centric
  - Good for collecting spatial data. Points, Lines and Polygons.



# Examples

1. Eastern Snake Plain Aquifer Monitoring
2. Flow Meter Inventory in Water Districts
3. Water Measurement Information Gathering
4. IDWR Transaction Monitoring
5. Beneficial Use Exams



Hagerman ESPA Monitoring V1.1

with Web AppBuilder for ArcGIS

Esri World Geocoder



(3 of 3)

Hagerman: Upper Tucker SR

Station Name: Upper Tucker SR

PakBus: 1003

[Open in Survey123](#)

[Zoom to](#)



## Hagerman ESPA Monitoring



# Hagerman ESPA Monitoring



Survey123 for ArcGIS

### Hagerman ESPA Monitoring V1.3

Please type in the site name: \*

Upper Tucker SR

Visit Date: \*

Tuesday, July 11, 2017

Examiner:

☒ Michelle Richman ☐ Tito Sanabria

Station Time: \*

1:21 PM

Station Date: \*

Tuesday, July 11, 2017

Server Time: \*

1:06 PM

Type of Measurement: \*

☒ Staff Gage ☐ Flow Meter

☐ Not Available (99)

✓

Survey123 for ArcGIS

### Hagerman ESPA Monitoring V1.3

Discharge Measured?

☐ Yes ☒ No

Comments:

Loaded new program for AQ

Maintenance Issues:

Order desiccant and moth balls

Do you need to follow up? \*

☒ Yes ☐ No

Station Image:

A Second Station Image:

Location \*

42°46'N 114°52'W

✓



Need follow up?

● Yes  
● No



Hagerman ESPA Monitoring V1.1

with Web AppBuilder for ArcGIS

Esri World Geocoder



(1 of 3)

Hagerman\_ESPA\_Monitoring\_V1\_3

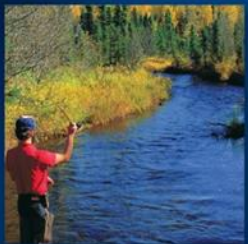
Site: Upper Tucker SR  
Visit Date: 9/5/2017, 12:00 AM  
Comments: Large fluctuation of data  
Maintenance Issues: Mounting for tower seems loose  
Staff Gage Reading 1: 0.82  
Staff Gage Reading 2:  
Flow Meter Reading 1:  
Flow Meter Reading 2:  
Battery Voltage: 14.29  
Internal Batter Voltage: 3.33  
Discharge Measured? No

Attachments:  
No attachments found

Edited by wrobertson\_IDWR on 9/7/17 at 1:56 PM

[Zoom to](#)





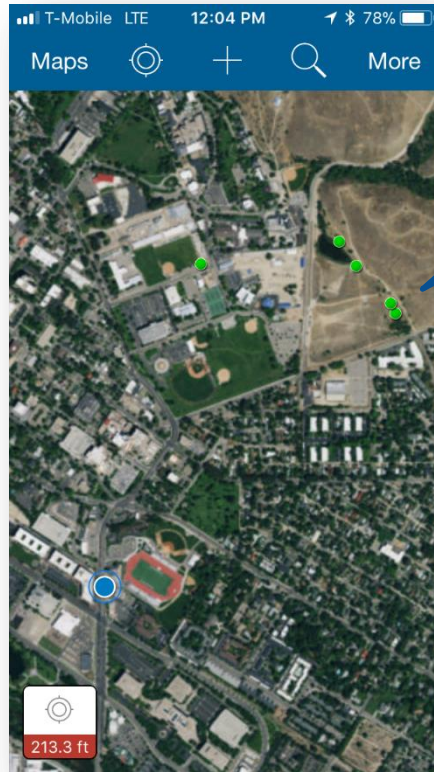
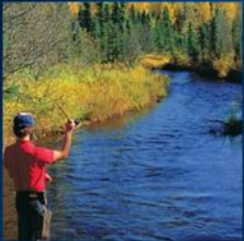
# Beneficial Use Exams

Need to record:

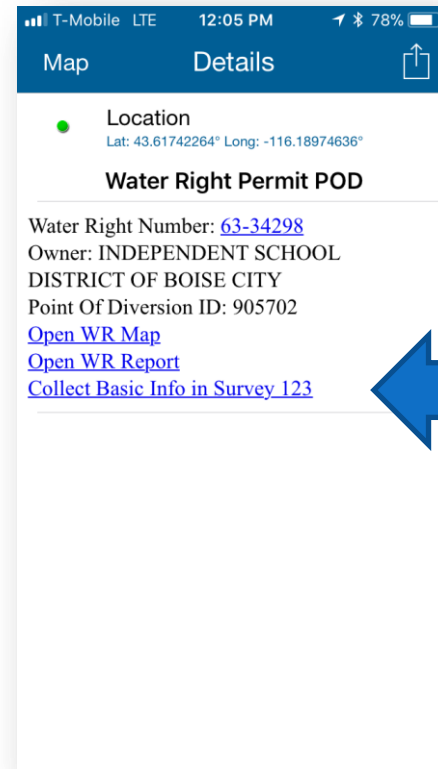
1. Basic Information
2. Points of Diversion
3. Place of Use



# Beneficial Use Exams

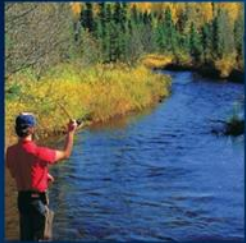


Places with  
a Permit





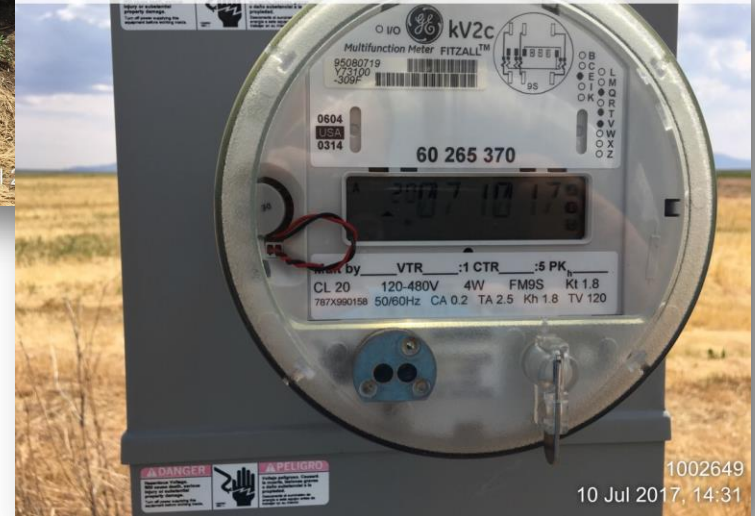
# Water Measurement Information System

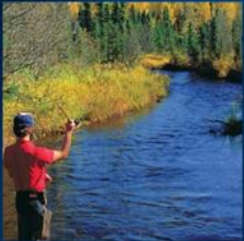


☉ 182°S (T) ● 42°11.453'N, 113°19.421'W ±16.4ft ▲ 4643ft



☉ 175°S (T) ● 42°11.448'N, 113°19.422'W ±16.4ft ▲ 4636ft





Idaho Department of Water Resources

## WMIS

Water Management Information System

### Quick Search:

Search Method:

WMIS Number

WMIS Number

1002495

Search

[Point Of Diversion](#) [PCC](#) [Flow Meter](#) [Time Clock](#) [Alternate](#) [Contacts](#) [Data Summary](#) [O](#)

## Flow Meter Calibrations

You are viewing 1002495; A0013327

[Click here to close insert panel.](#)

Calibration Date/Time:\*

Factor:

### Installed Meter Data:

Installed Meter Flow:

Rate Unit\*:

--Required--

Rate Multiplier\*:

--Required--

Volume Multiplier\*:

--Required--

Volume Unit\*:

--Required--

Location:

--None--

Comments:

### Standard Meter Data:

Standard Meter Flow:

Rate Unit:

GPM

Pipe Material:

--None--

Outside Diameter (inches):

Wall Thickness (inches):

Downstream Distance (feet):

Upstream Distance (feet):

Survey123 for ArcGIS

My Survey

Inspection Date

Tuesday, July 11, 2017

WMIS #

1000059

Metal Tag #

A0016372

Owner/Operator

US DEPT OF INTERIOR

Reporting District

Water District 110

Flow Meter Manufacturer \*

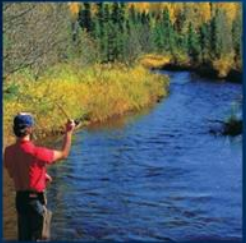
Sparling

Model Specifications \*

Tigermag FM-656 (Flanged)

Flow Meter Type \*





## Requirements

1. Create Survey

2. Launch Survey

3. Do Survey

4. Process Results

Windows x86

Size: 84 MB

macOS

Size: 154 MB

Linux

Size: 132 MB



- **Collecting data:**
  - Personal mobile device/IDWR device

# Using Map Services

- <https://maps.idwr.idaho.gov/arcgis/rest/services/BP>

## ArcGIS REST Services Directory

[Home](#) > [services](#) > **BP**

[JSON](#) | [SOAP](#)

### Folder: BP

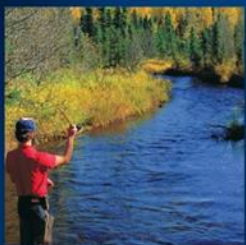
Current Version: 10.22

View Footprints In: [ArcGIS.com Map](#)

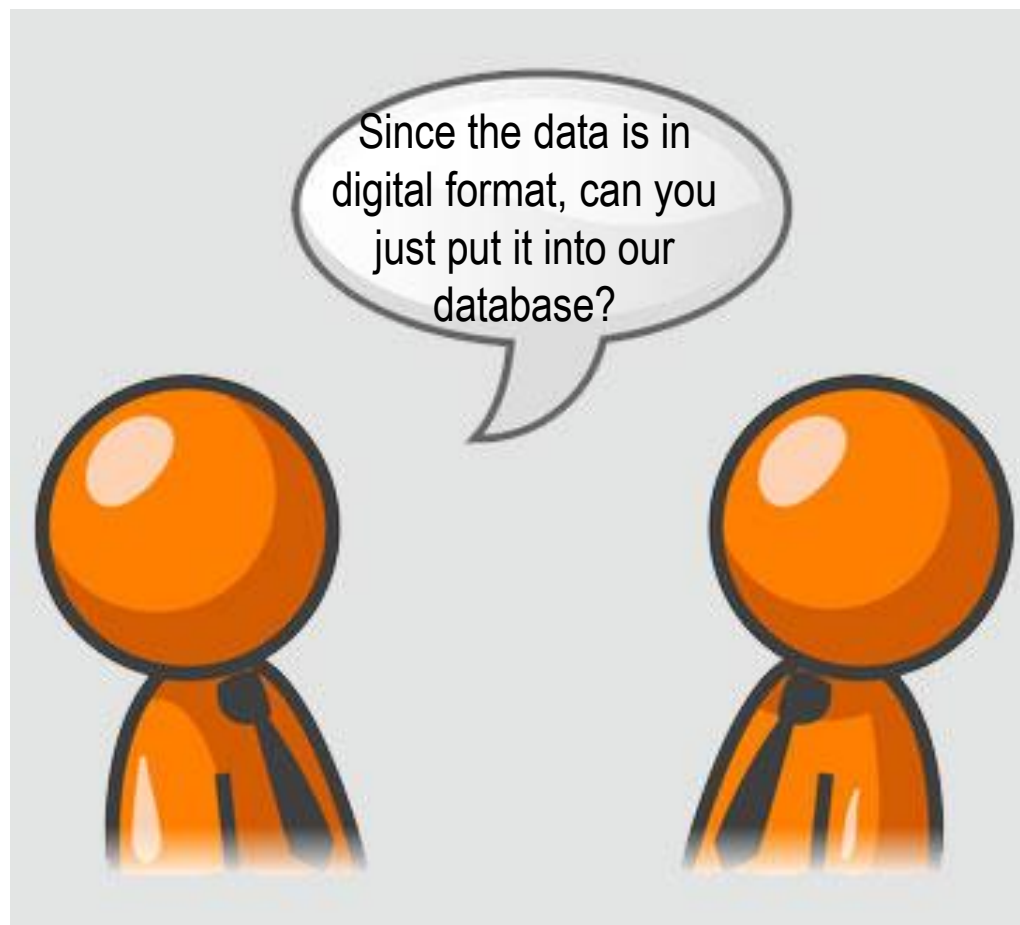
### Services:

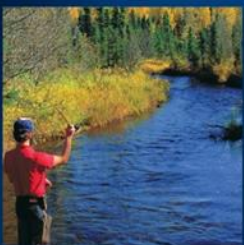
- [BP/ AdjudicationPhotos](#) (MapServer)
- [BP/ CBWTP](#) (MapServer)
- [BP/ ConsumptiveUse](#) (MapServer)
- [BP/ Counties](#) (MapServer)
- [BP/ DamSafety](#) (MapServer)
- [BP/ EDMS](#) (MapServer)
- [BP/ ESPA](#) (MapServer)
- [BP/ FEMA\\_scannedFIRM](#) (MapServer)
- [BP/ FloodHazard\\_IDWR](#) (MapServer)
- [BP/ Geothermal](#) (MapServer)
- [BP/ Groundwater](#) (MapServer)





## Lessons learned





Survey123 for ArcGIS

## My Survey

Inspection Date  
Tuesday, July 11, 2017

WMIS #  
1000059

Metal Tag #  
A0016372

Owner/Operator  
US DEPT OF INTERIOR

Reporting District  
Water District 110

Flow Meter Manufacturer \*  
Sparling

Model Specifications \*  
Tigermag FM-656 (Flanged)

Flow Meter Type \*

Survey123 for ArcGIS

## WD 143 Survey 1.3.2

WMIS Number \*  
1002491

Date Inspected  
Monday, July 10, 2017

Examiner  
Clinton Barnes

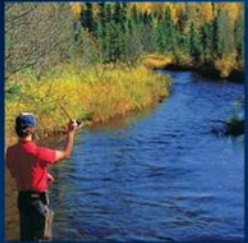
Diversion Name

Land Owner or Contact  
US GEOTHERMAL INC

Contact Information  
2084241027

Well Use  
☐ Irrigation  
☒ Commercial  
☐ Stockwater  
☐ Other





# Standardized Survey



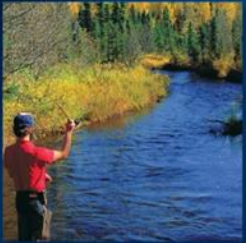
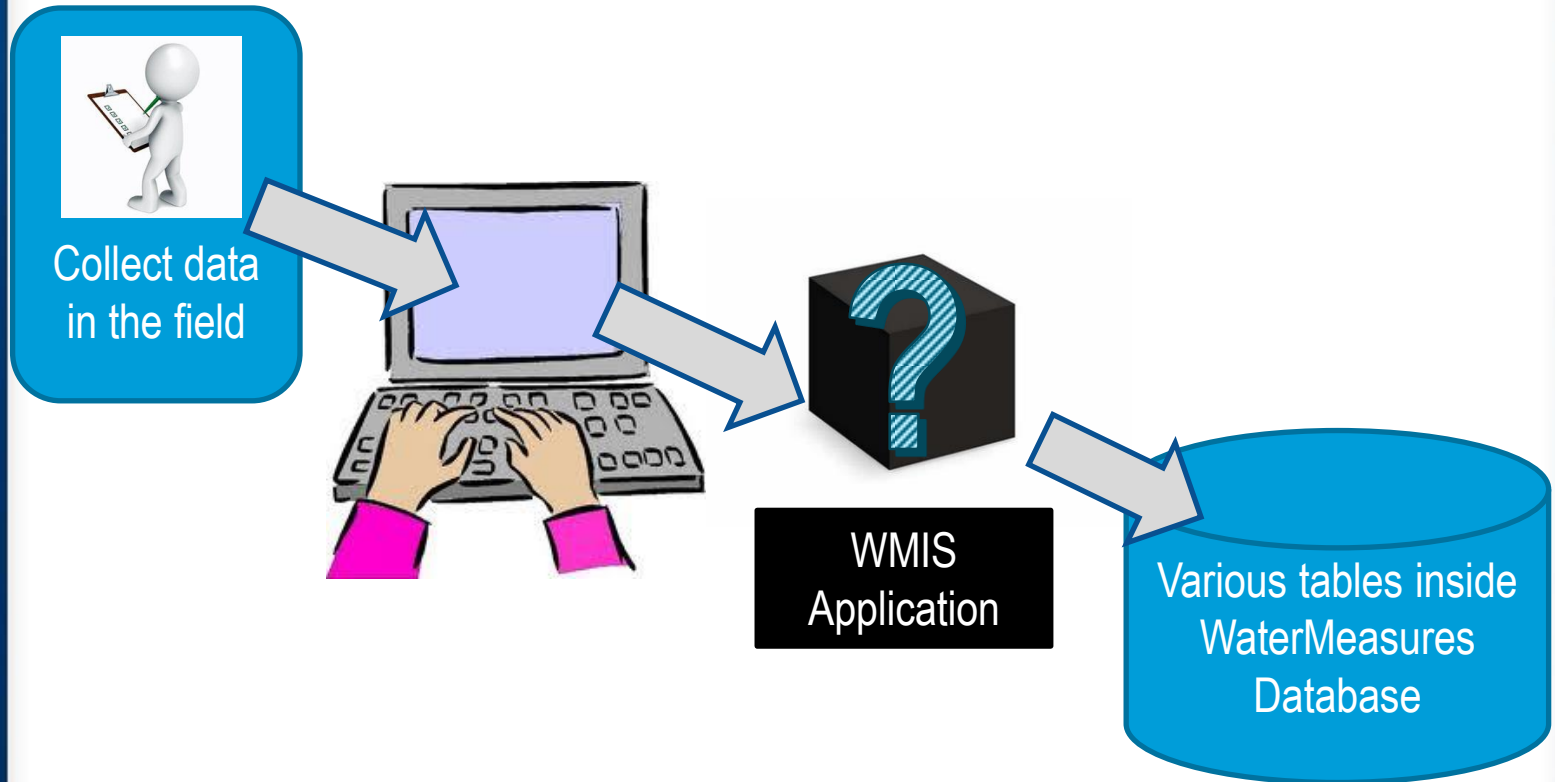
- Everything related to WMIS in one place
- Designed with database in mind: match items on drop-down list, set required items, match data types, *etc.*

Survey123 for ArcGIS

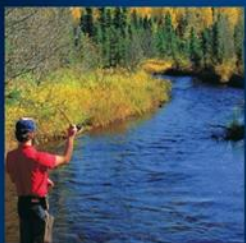
## Standardized WMIS Survey V1.2

1. WMIS Number: \*
2. Contact Information (WMIS):  
Should be prepopulated. Fix manually in WMIS Application if incorrect
3. Owner Information (WR):  
For informational purposes only (if populated)
4. Date of Inspection: \*  
10/9/2017 11:38 AM
5. Examiner: \*
6. Purpose(s) of the Survey: \*
  - ☐ Point of Diversion ☐ PCC Conditions
  - ☐ Flow Meter Water Usage ☐ Flow Meter Calibration

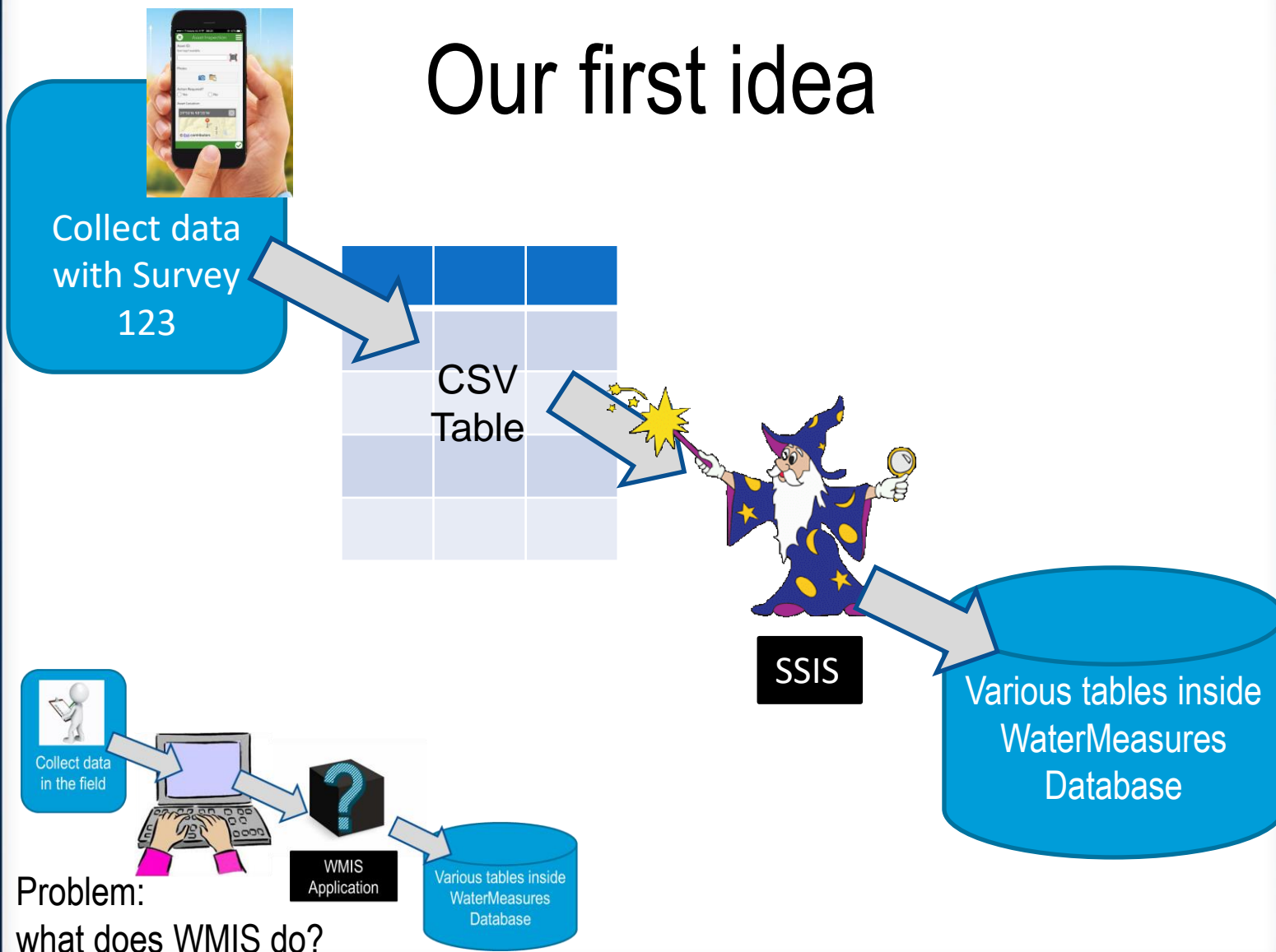
## Current Process







## Our first idea



## Our second idea: Use Robotic Process Automation

The image shows a Windows 7 desktop environment with a blue background and a large orange and blue graphic. The taskbar at the bottom displays several icons, including the Start button, Internet Explorer, VLC media player, and the UiPath Studio icon. The desktop has several icons for applications like Recycle Bin, VLC media player, Windows Explorer, Acrobat Reader DC, and Google Chrome. The main window is the UiPath Studio application, titled "Survey123\_to\_WMIS". The interface shows a workflow editor with a "Process one row of data" activity. The workflow includes a "Start" node, followed by "Read basic variables and su", "Format Inspection Date", and a series of decision diamonds labeled "POD?", "PCC?", "FM Water Usage?", and "FM Calibration?". Each decision diamond has a "True" path leading to a corresponding "Process" activity (e.g., "Process POD Info", "Process PCC", "Process FM Water Usage", "Process FM Calibration") and a "False" path leading to the next decision diamond. The "Process" activities are labeled "Double-click to view". The right sidebar shows the "Properties" pane for the selected activity, and the bottom status bar indicates the time as 11:11 AM on 1/8/2018.



# User Group and Policy

## Policy XXX - Survey 123 use at IDWR

### Overview

Survey 123 is a technology developed and supported by ESRI Inc. to create surveys and use those surveys to collect information on desktop and mobile devices. Since the spring of 2017 Survey 123 has been adopted by various groups inside IDWR, and over the summer of 2017 numerous different surveys have been designed and over a thousand surveys have been collected. This policy is put in place to promote best practices as well as to promote survey design that facilitates the development of workflows to potentially move data collected by Survey 123 into the appropriate IDWR applications and databases.

### Terminology

**ArcGIS Online:** A collaborative platform that allows members of an organization to use, create and share maps, applications and spatial information online.

**Survey 123:** A suite of applications to create surveys, collect data and view and download survey results.

**Survey 123 Connect:** Application to design, edit and publish new surveys. This application is typically installed on a desktop.

- Meetings to determine standard for large collection efforts
- Realization we need an IDWR policy to “govern” field tools

- **Designing a survey:**

- Involve GIS and IT department *early*
- Use standardized survey
- Keep destination database in mind
- Include field staff



- **Utilize existing services**

- Use existing web services.
- Model data flow
- Bring in other tools to 'fill the gap'

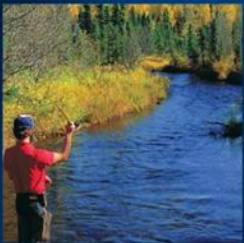


- **Policy for tools:**

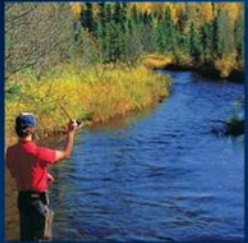
- User group
- Governance policy

- **Other:**

- Clean up after yourself
- Use thumbnails



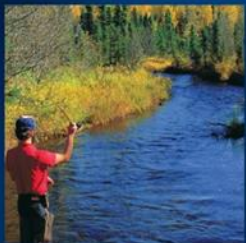




## Next Steps



- Incorporate mobile benefits into new applications
- Expand tools for internal and external customers



# Comments or Questions?



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